

FIG. 1A

A065545-D2203

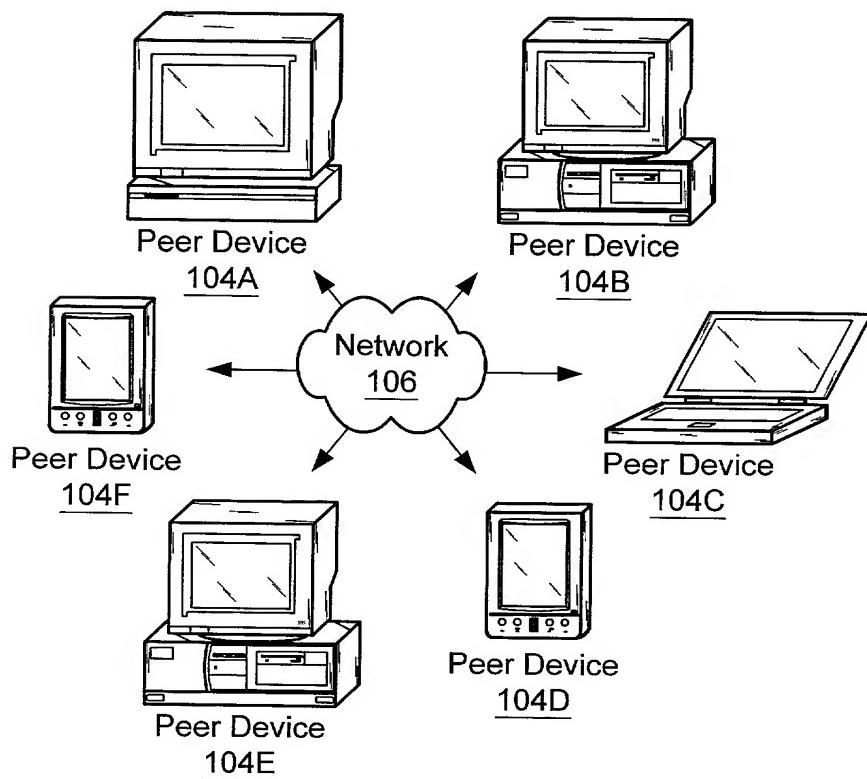


FIG. 1B

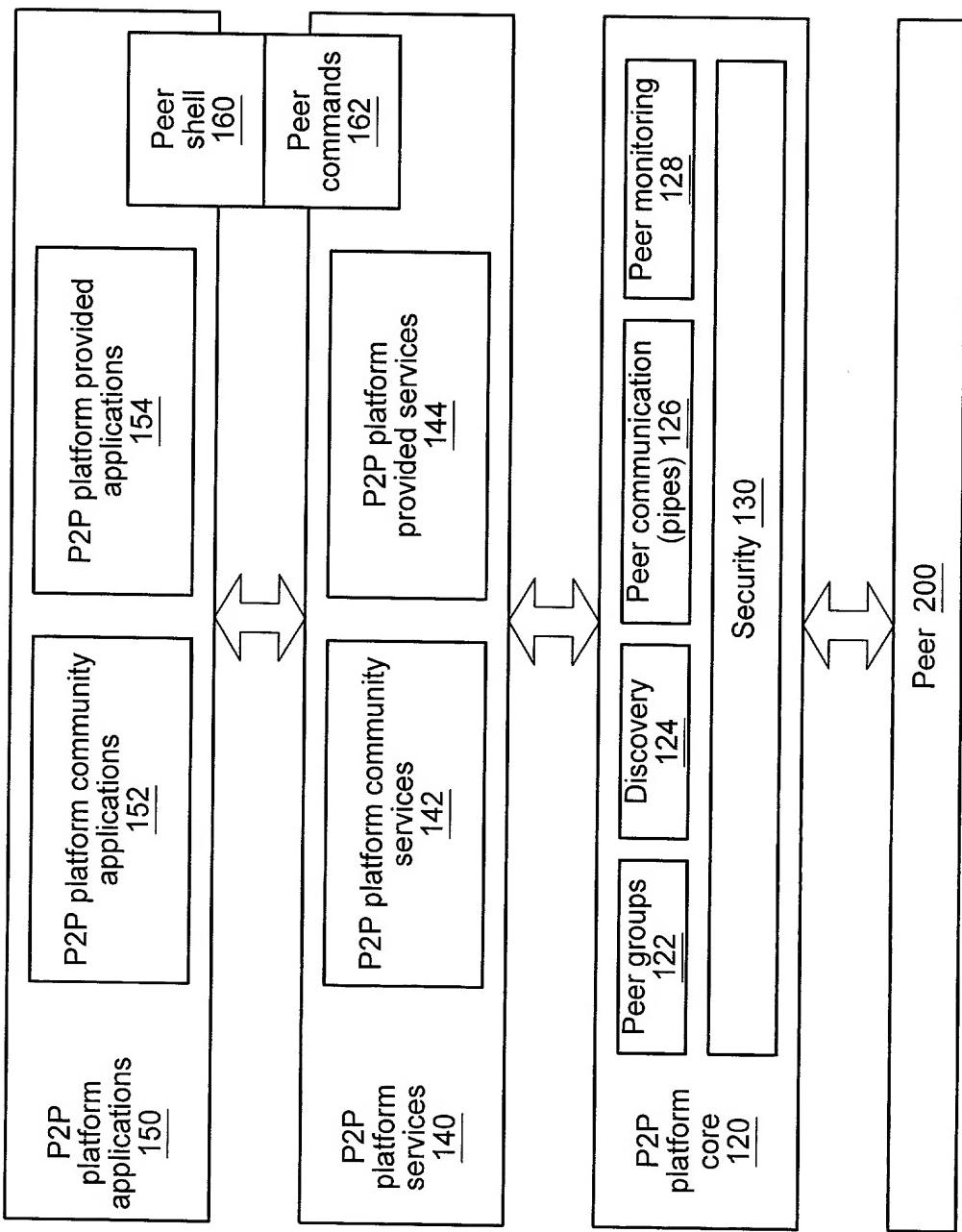


FIG. 2

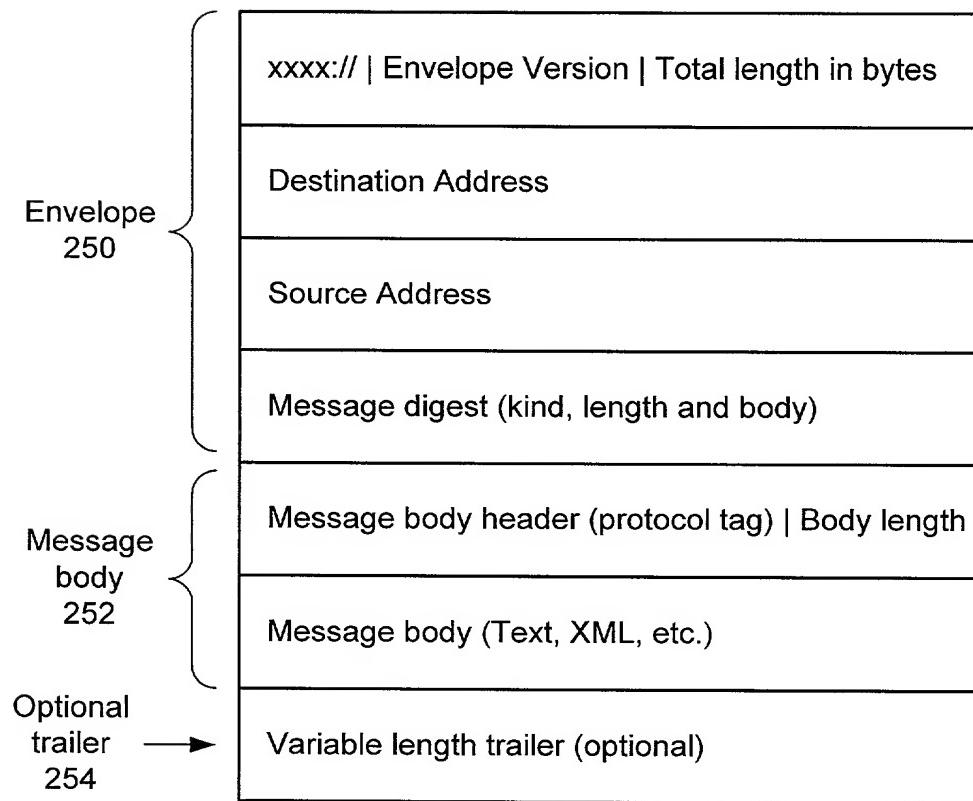
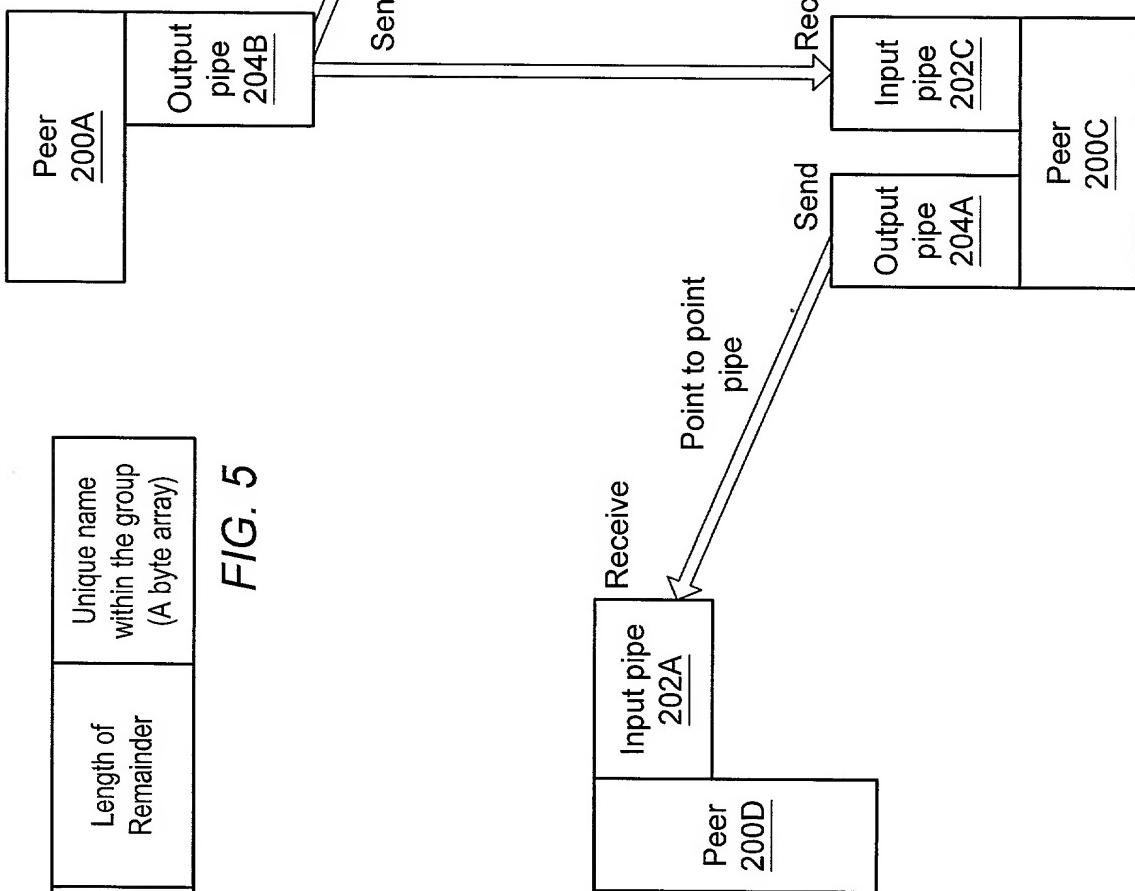


FIG. 3

Content ID	Length of Remainder	Unique name within the group (A byte array)
128 bit UUID of Peer Group		

FIG. 5



Message pipe modes
FIG. 4

Peer Advertisement

Element Name (A String)	Element Value Type
Name	<String>
Keywords	<String>
Properties	<Properties>
Service	<Service Advertisement[]> (an array)
Endpoint	<Endpoint Advertisement[]> (an array)

FIG. 6

Peer Group Advertisement

Element Name (A String)	Element Value Type
Name	<String>
Keywords	<String>
GroupID	<ID>
PeerID	<ID>
Service	<Service Advertisement[]> (an array)

FIG. 7

Pipe Advertisement

Element Name (A String)	Element Value Type
Name	<String>
Identifier	<ID>
Type	<String>

FIG. 8

1.00055545.02202

Service Advertisement

Element Name (A String)	Element Value Type
Name	<String>
Keywords	<String>
Identifier	<ID>
Version	<String>
Pipe	<PipeAdvertisement>
Params	<String>
URI	<String>
Provider	<String>
Access Method	<Method[]> (an array)

FIG. 9

Content Advertisement

Element Name (A String)	Element Value Type
Mime-Type (Optional)	<String>
Size	Long
Encoding	<String>
ContentID	<ID>
RefID (Optional)	<ID>
Document	<Document>

*FIG. 10***Endpoint Advertisement**

Element Name (A String)	Element Value Type
Name	<String>
Keywords	<String>
Address	<String>
Transport	<Transport Advertisement>

FIG. 11

4 0 0 5 5 6 4 5 0 0 3 0 3

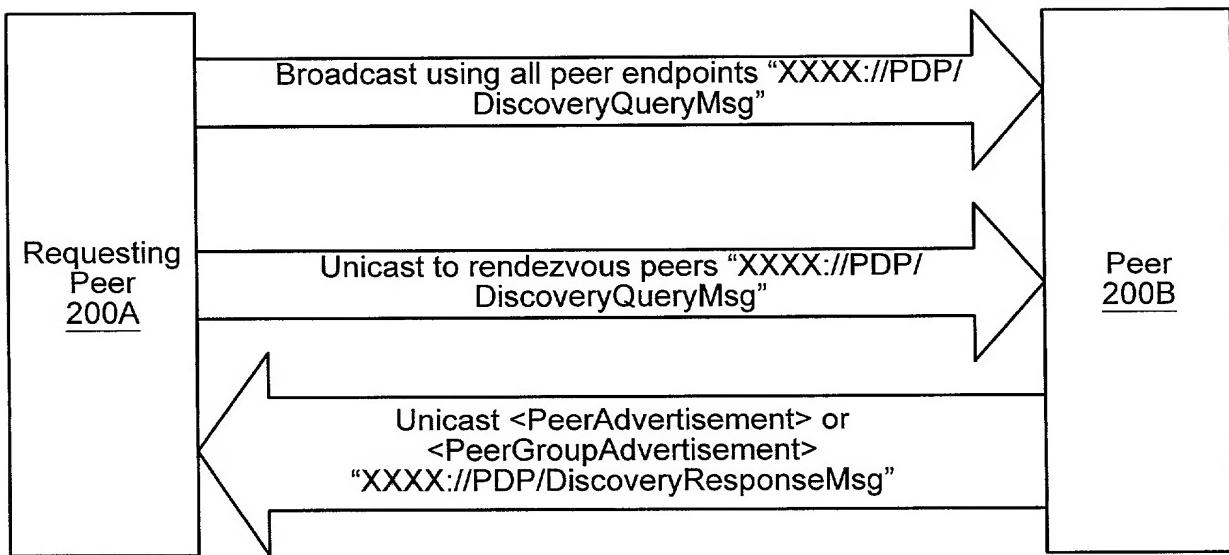


FIG. 12

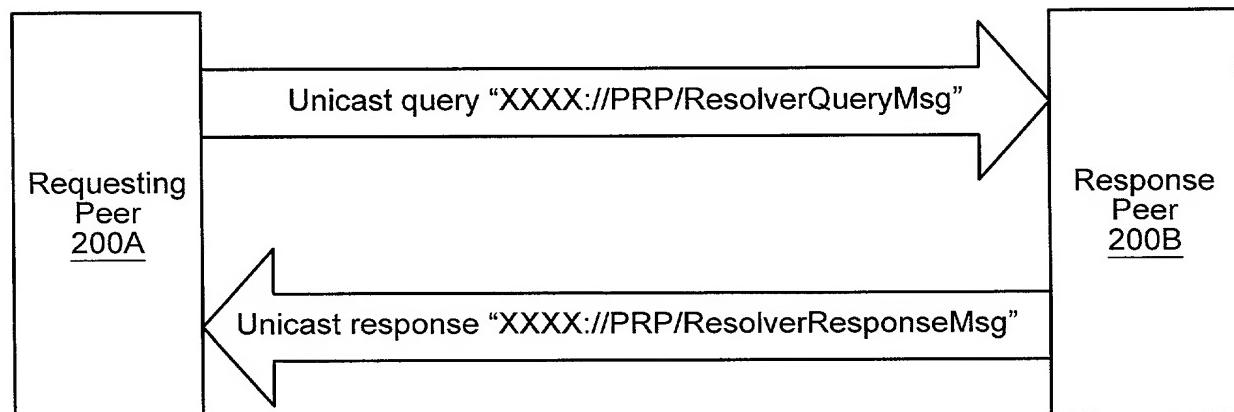


FIG. 13

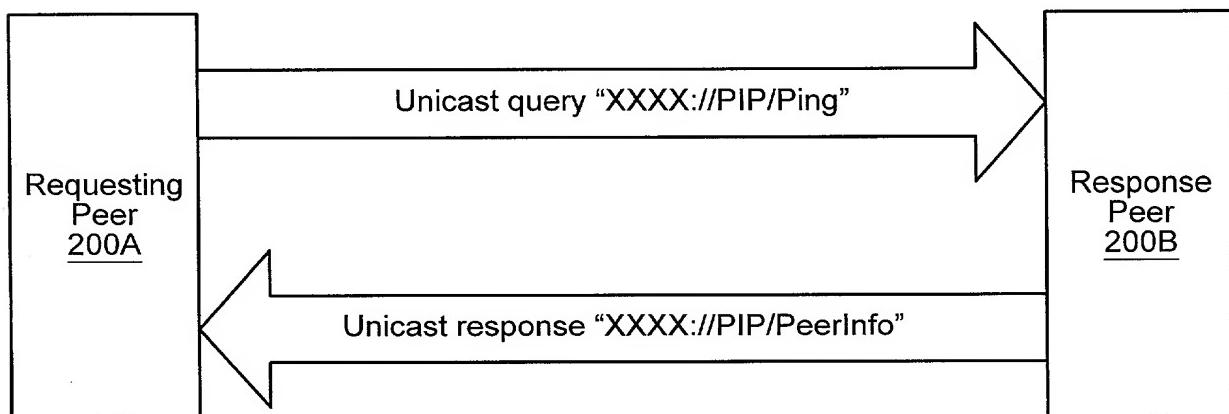


FIG. 14

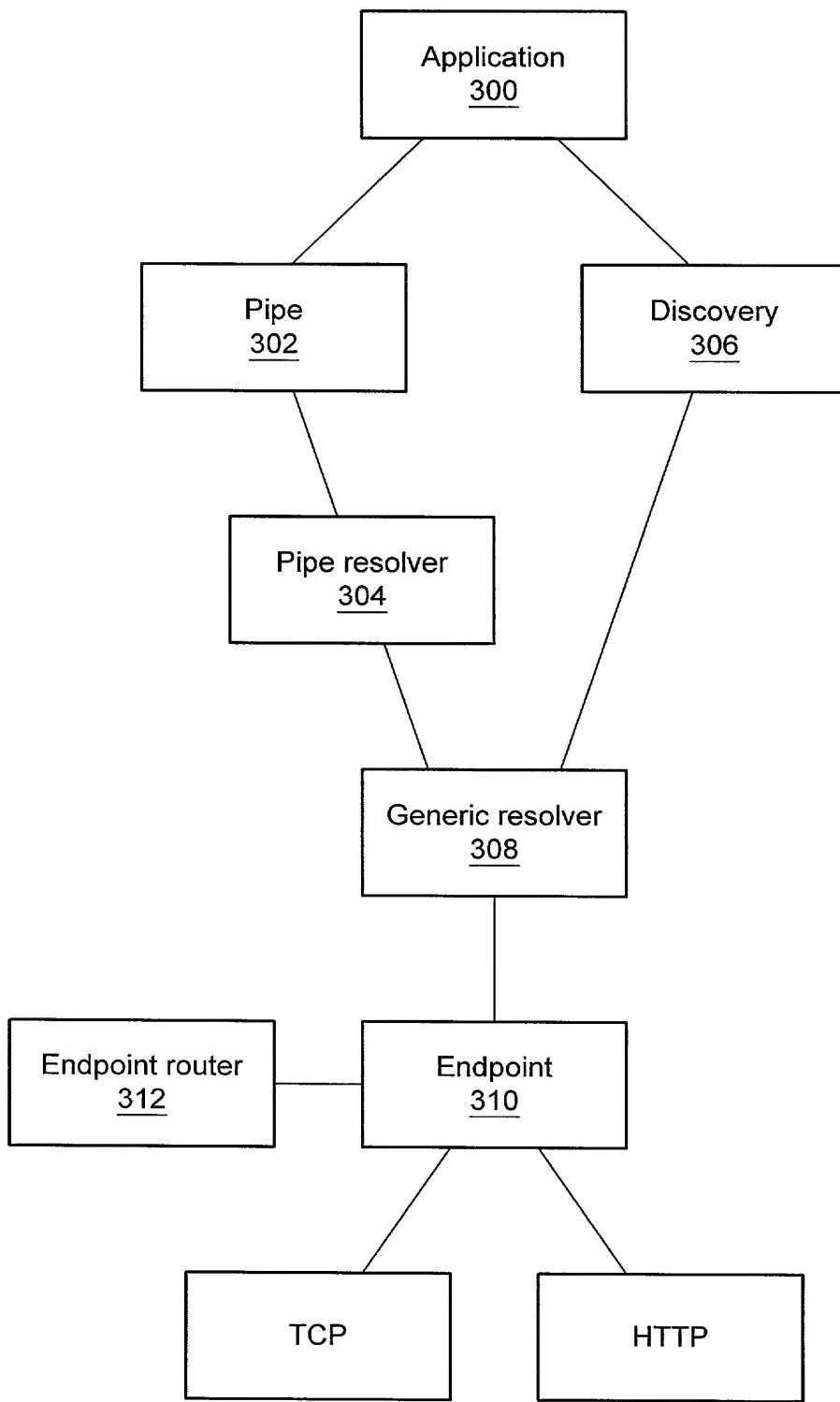
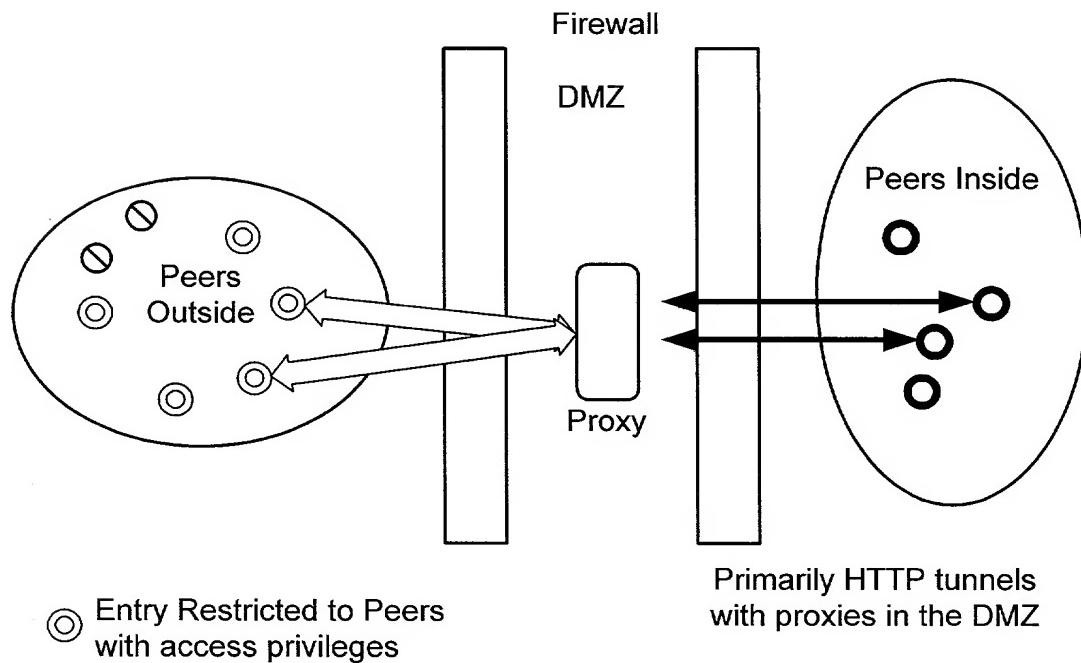
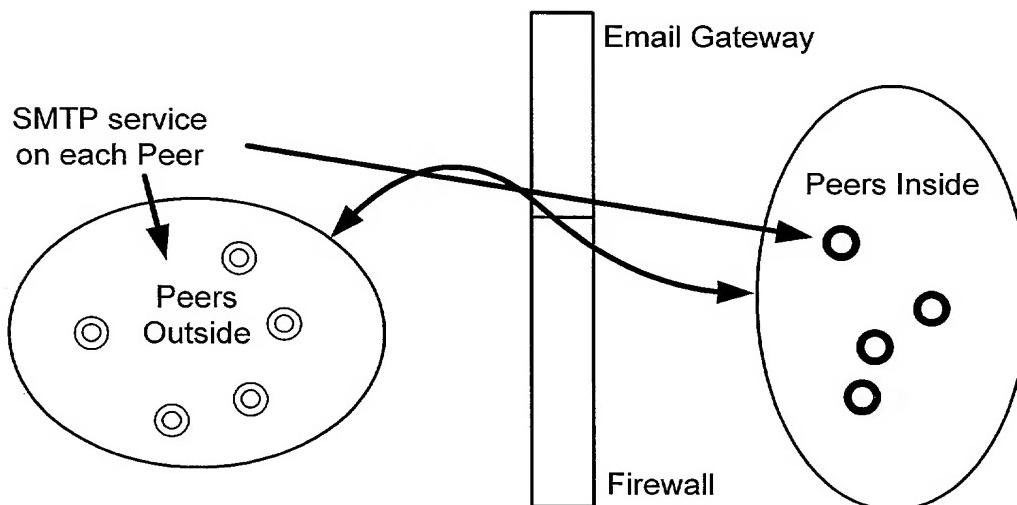


FIG. 15

**The Virtual Private Network
Access Initiated From Outside Only-Sun.Net Like**

*FIG. 16*

Email Exchange



- 100% Peer-to-Peer access cannot be guaranteed
- Inside the firewall mail account administration can impose restrictions
- Cannot require email addresses for all peers outside of the firewall

FIG. 17

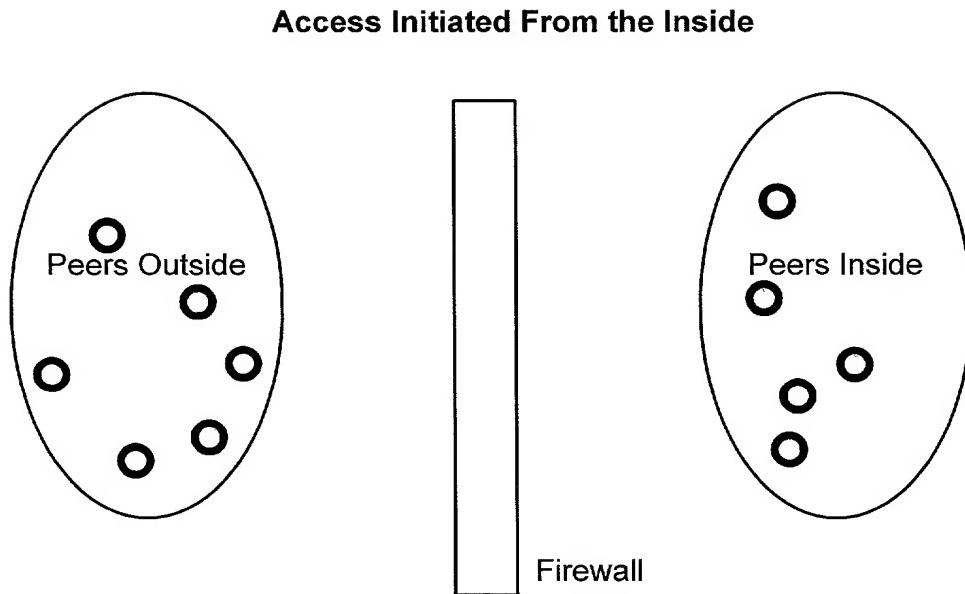
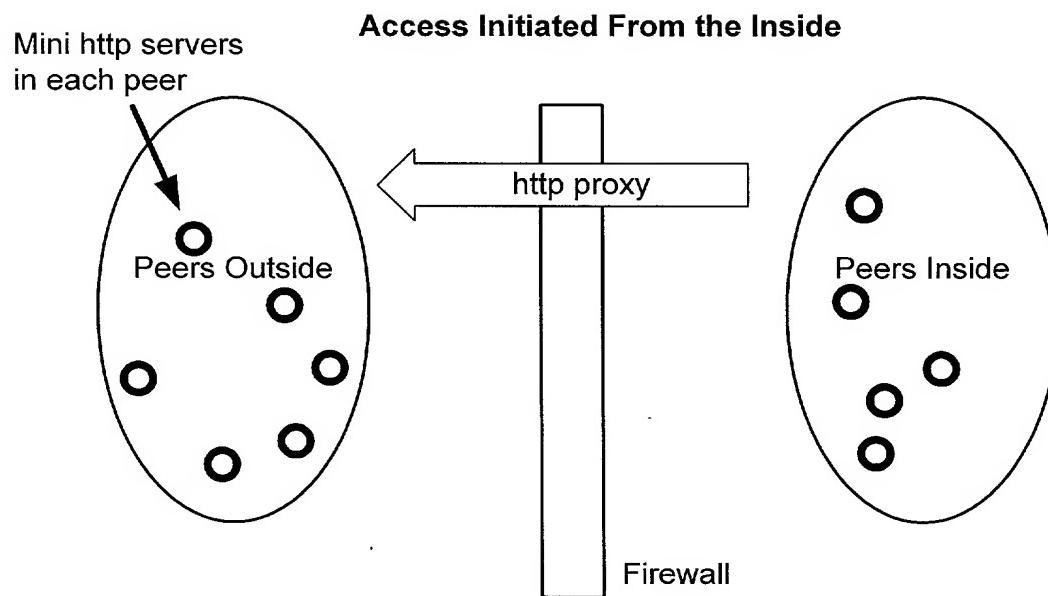
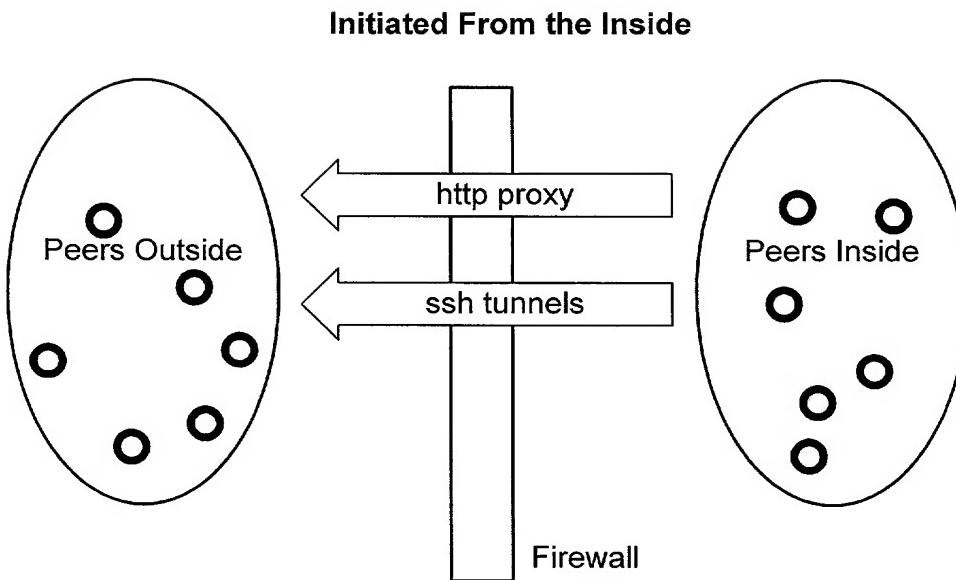


FIG. 18A

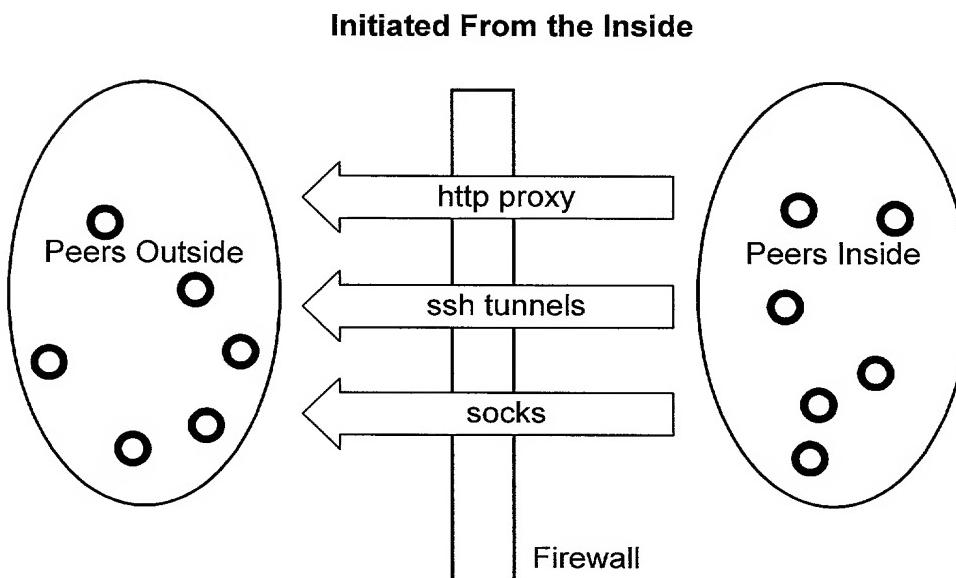


- <http://peer:port> proxy peer-2-peer http tunnels

FIG. 18B



- `http://peer:port` proxy peer-2-peer http tunnels
- Secure shell tunnels

FIG. 18C

- `http://peer:port` proxy peer-2-peer http tunnels
- Secure shell tunnels
- SOCKS connections if SOCKS is supported in the firewall
- SOCKS is typically used to telnet/ftp to the exterior

FIG. 18D

Proxy Service

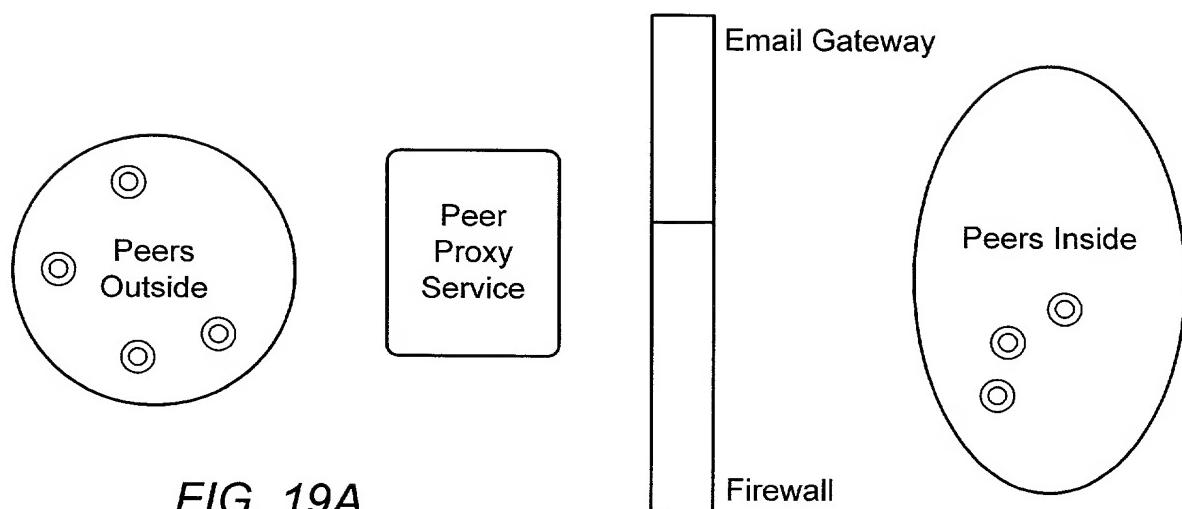


FIG. 19A

Proxy Service

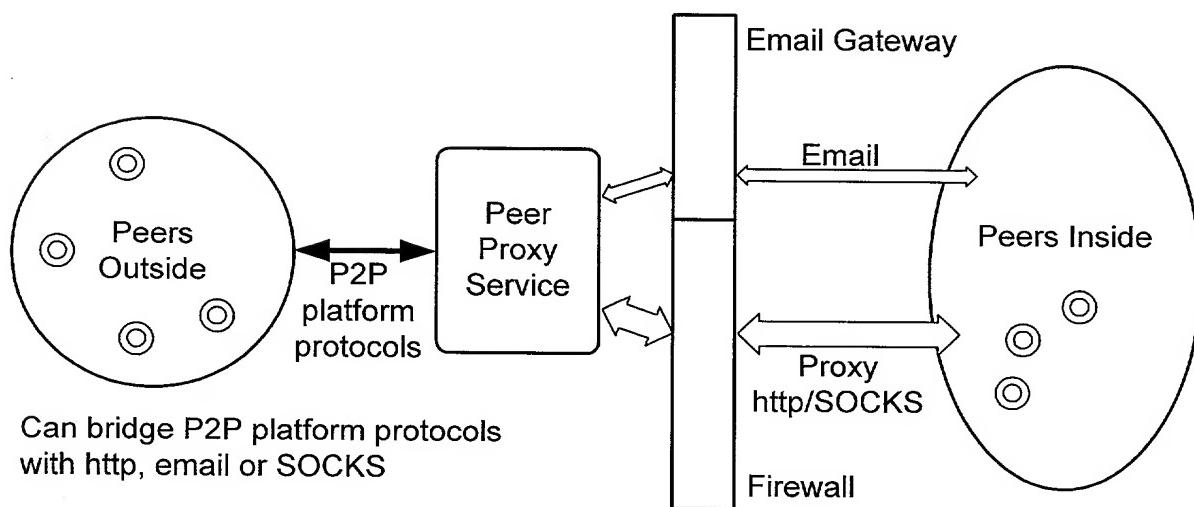


FIG. 19B

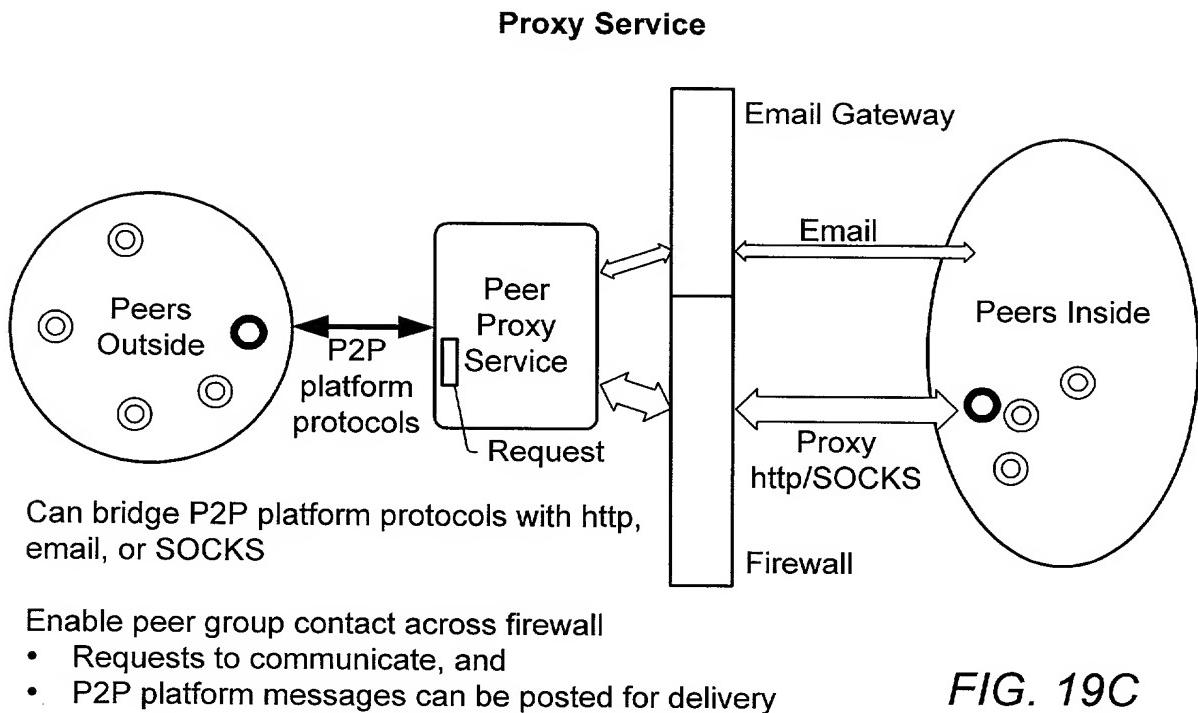


FIG. 19C

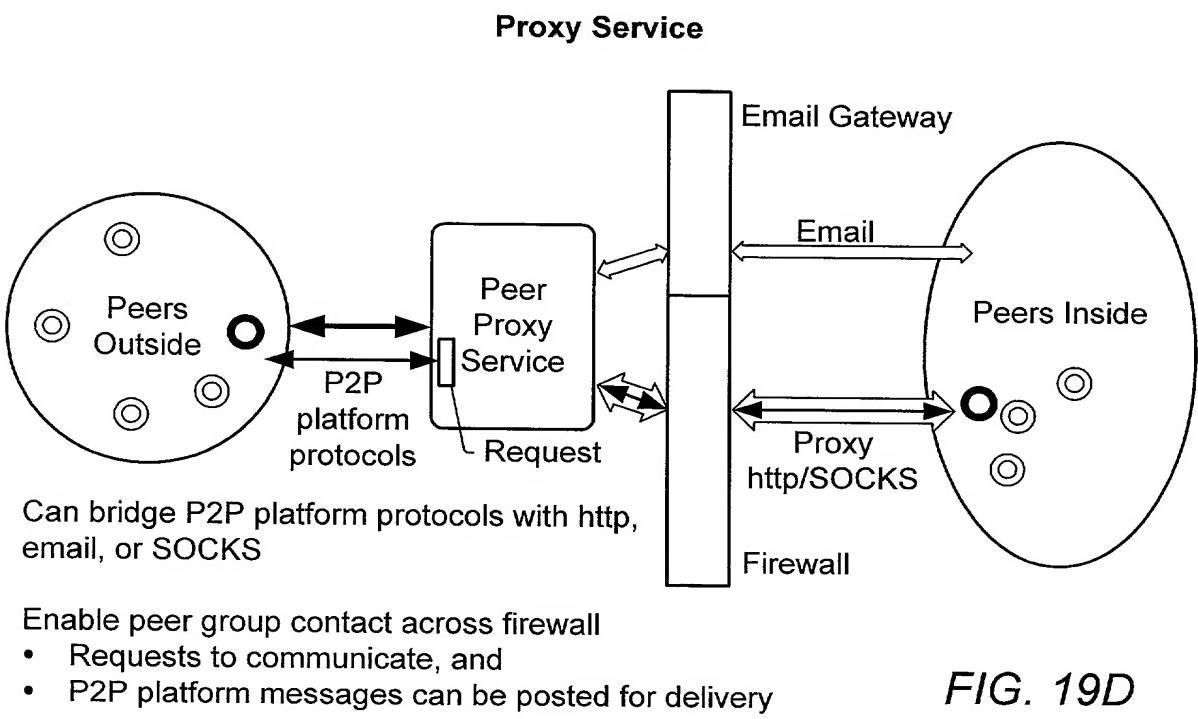
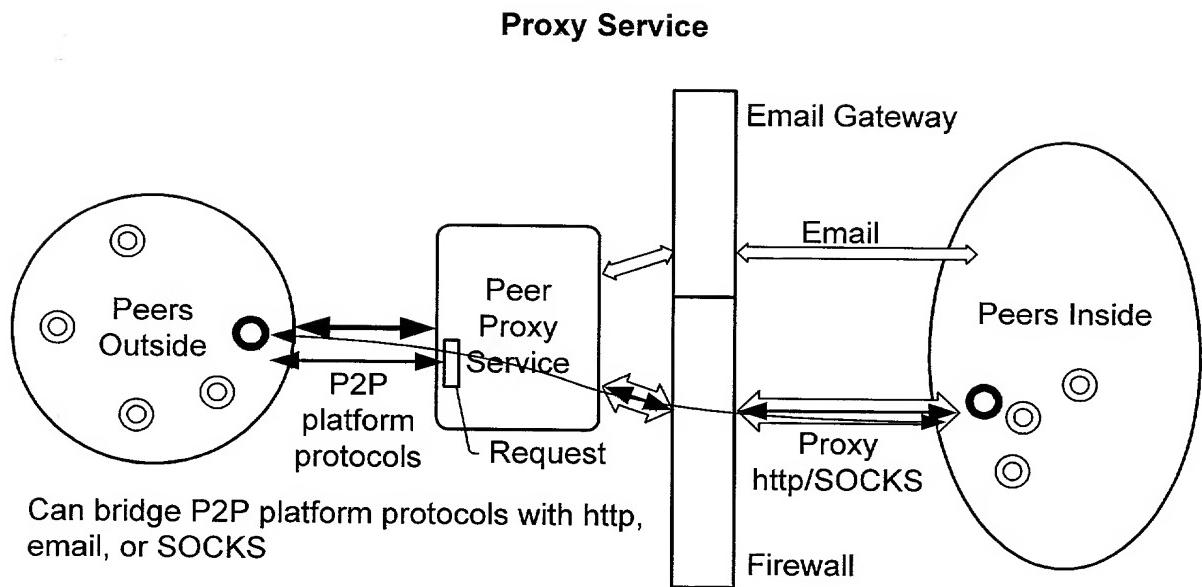


FIG. 19D



Can bridge P2P platform protocols with http, email, or SOCKS

Enable peer group contact across firewall

- Requests to communicate, and
- P2P platform messages can be posted for delivery

Establish secure "pipes" as necessary

FIG. 19E

100556MS-Draft 2009

Proxy Service for Peer Group Registration

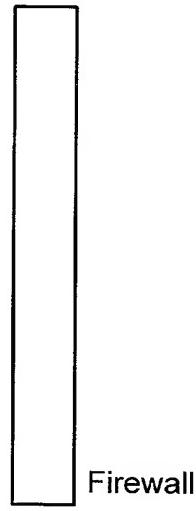


FIG. 20A

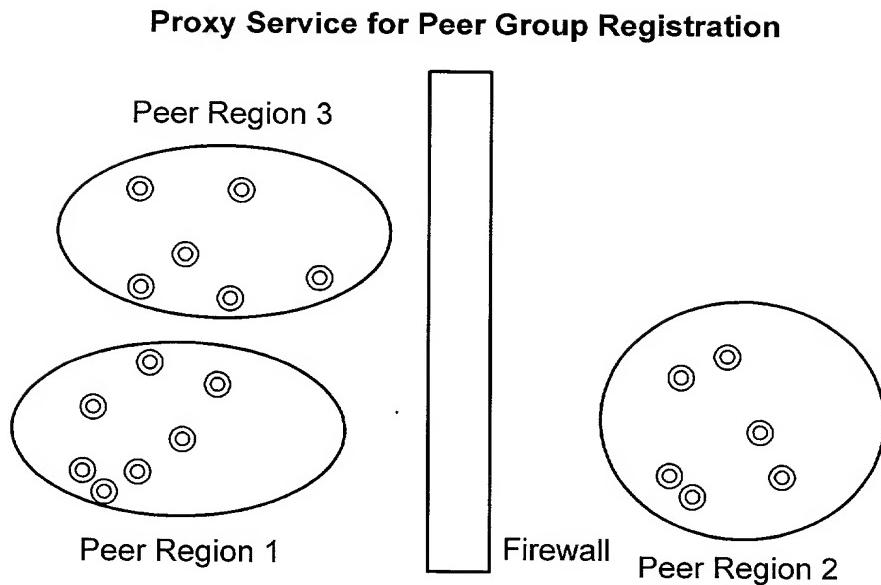


FIG. 20B

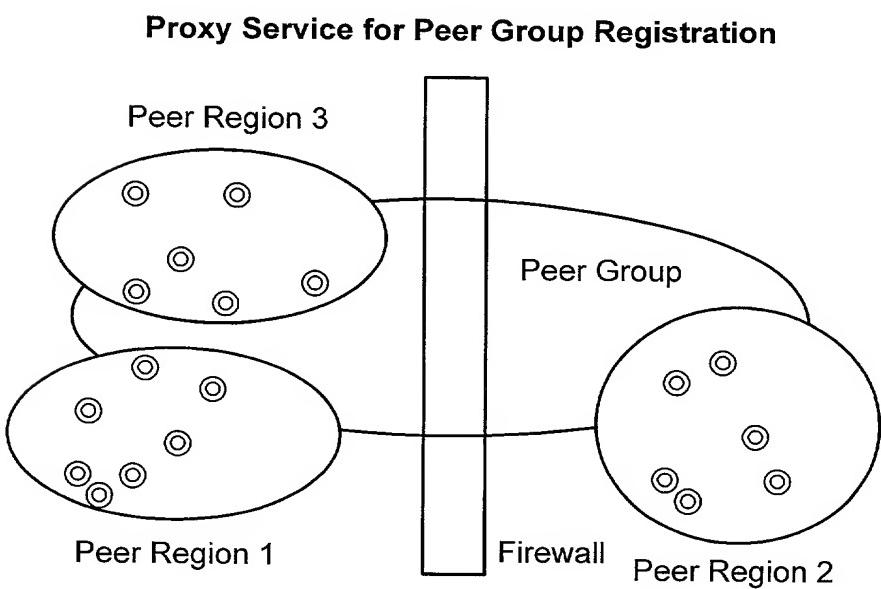


FIG. 20C

Proxy Service for Peer Group Registration

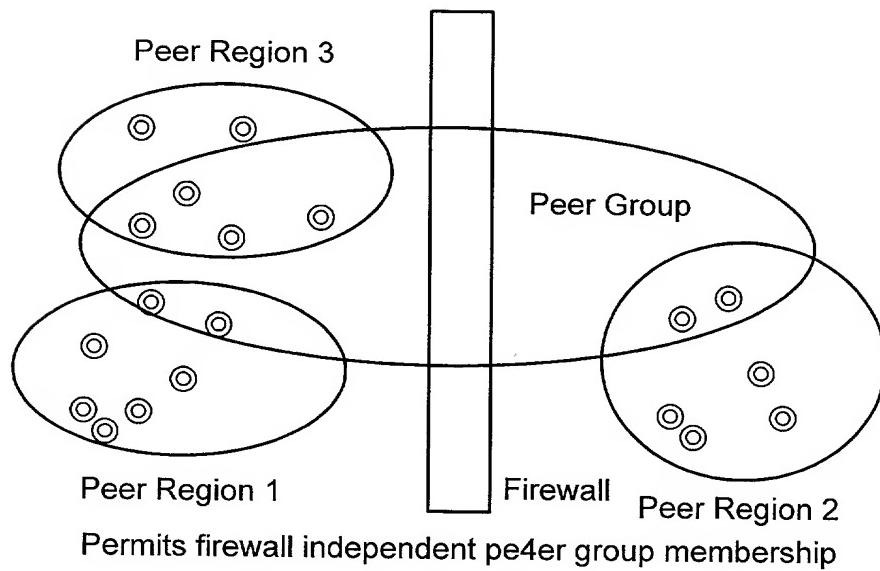


FIG. 20D

Peer Group Registration

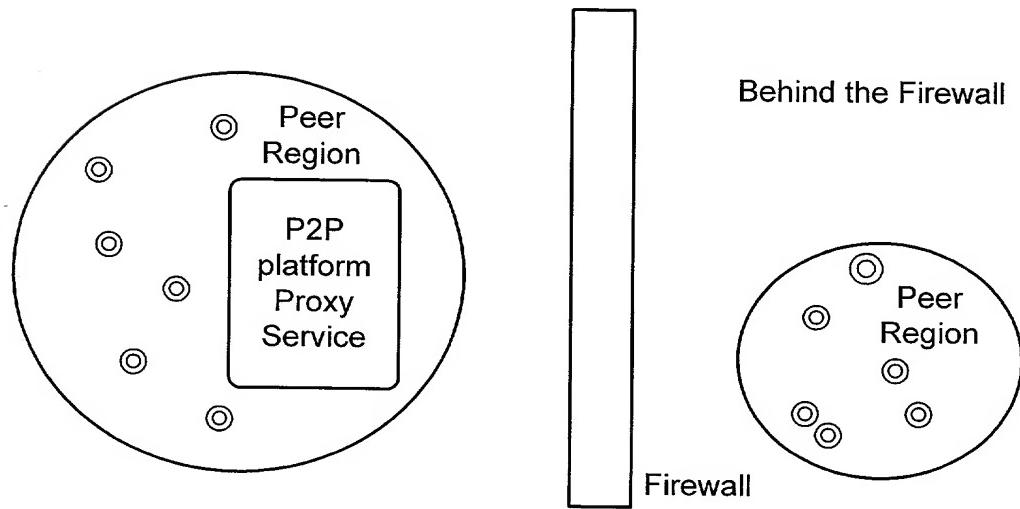
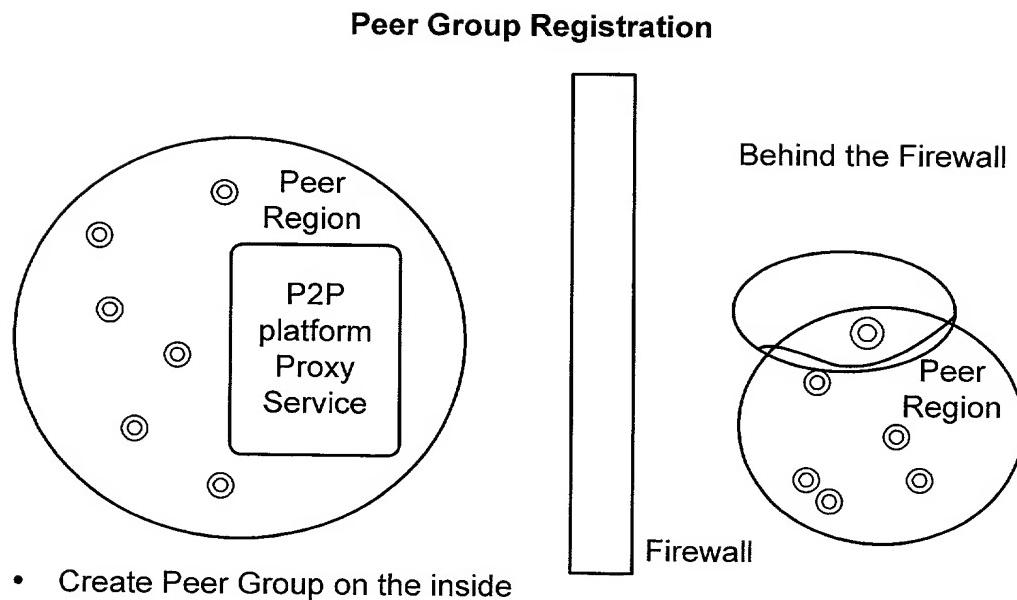
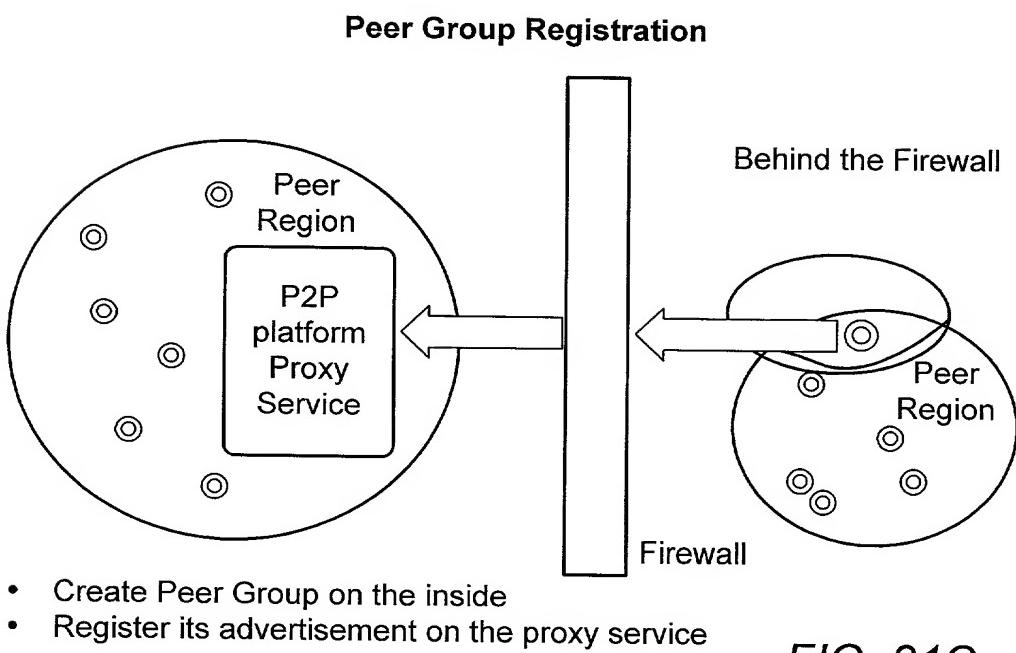
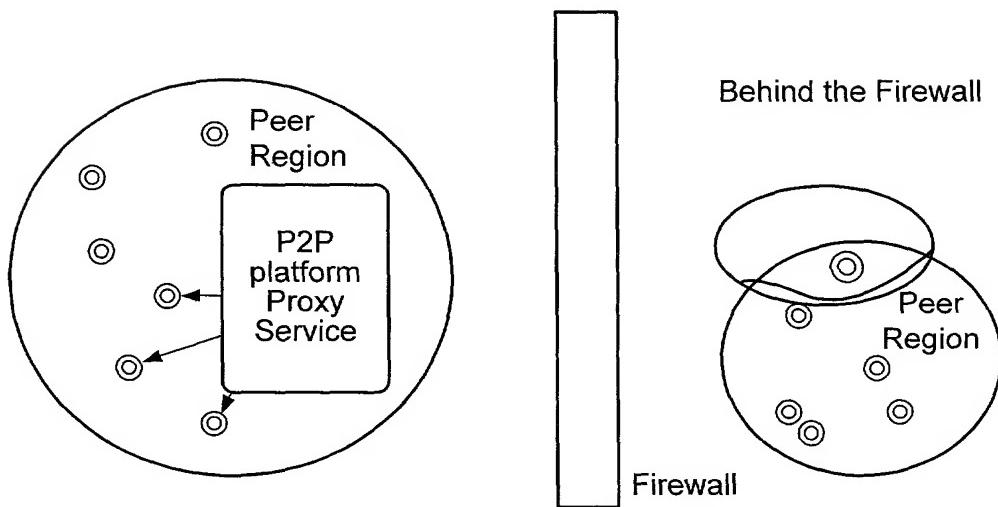


FIG. 21A

*FIG. 21B**FIG. 21C*

Proxies Peer Group Registration



- Create Peer Group on the inside
 - Register its advertisement on the proxy service
 - Notify peers in proxy service's region only
 - Notify other known P2P platform proxy services

FIG. 21D

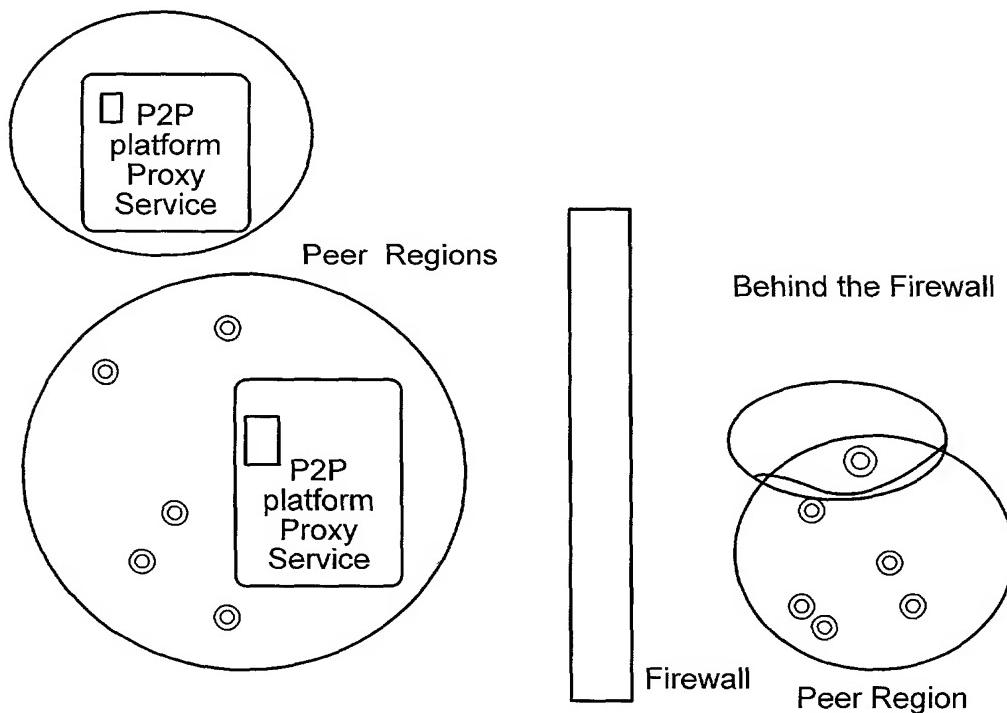


FIG. 22A

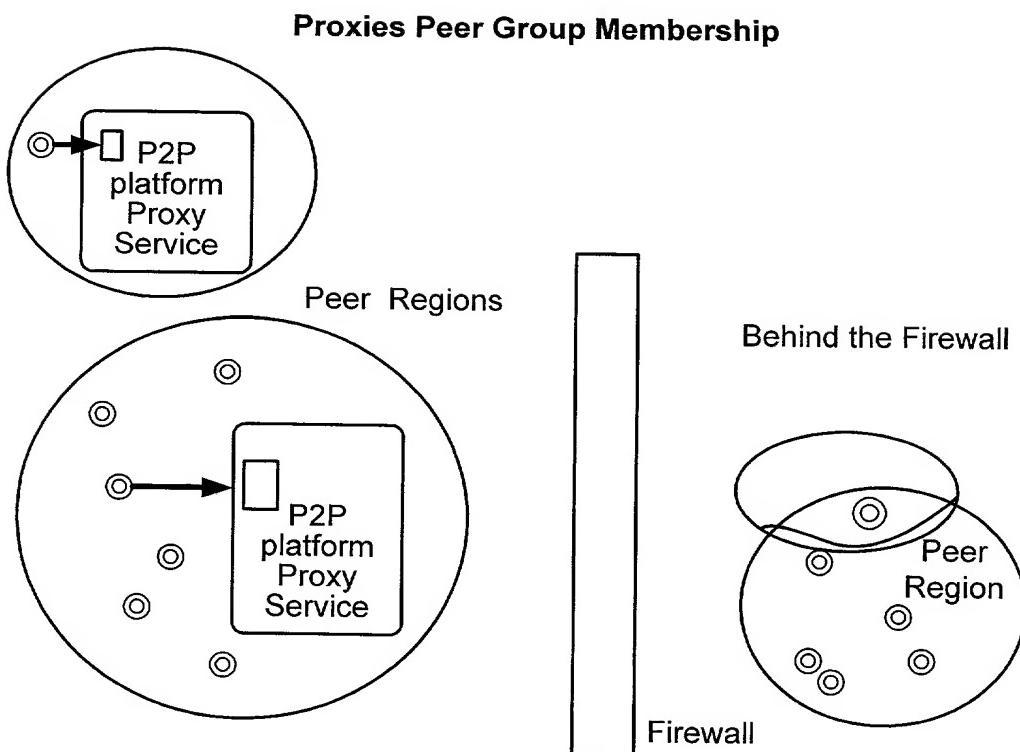
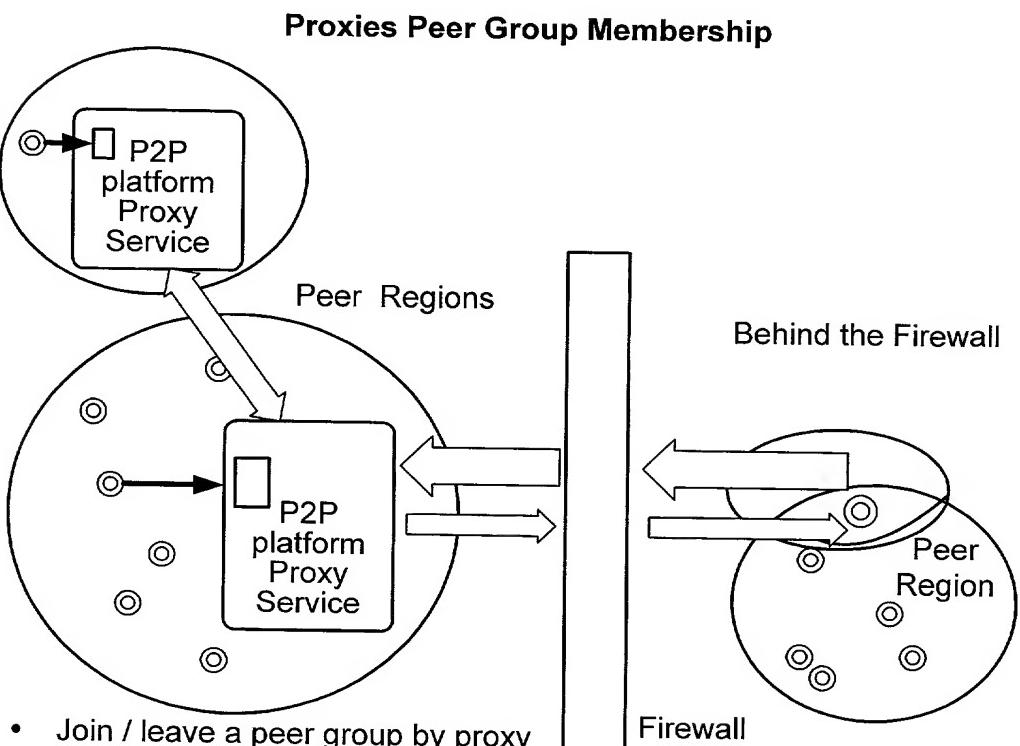
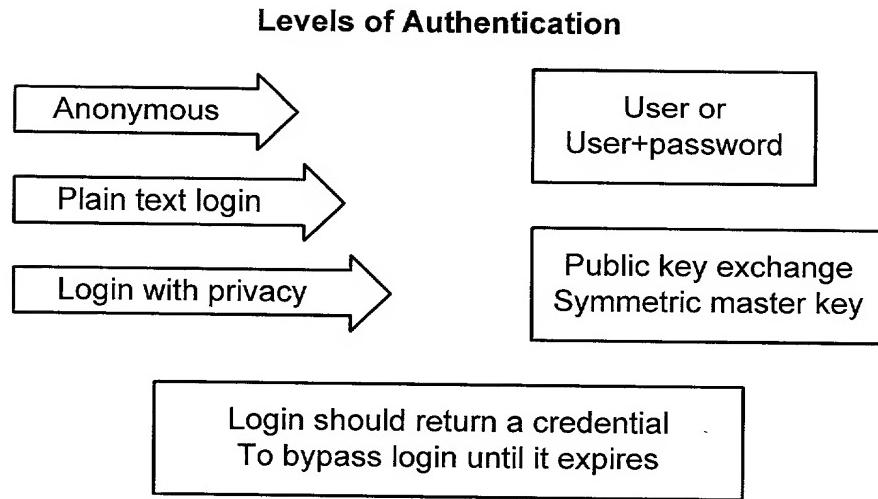
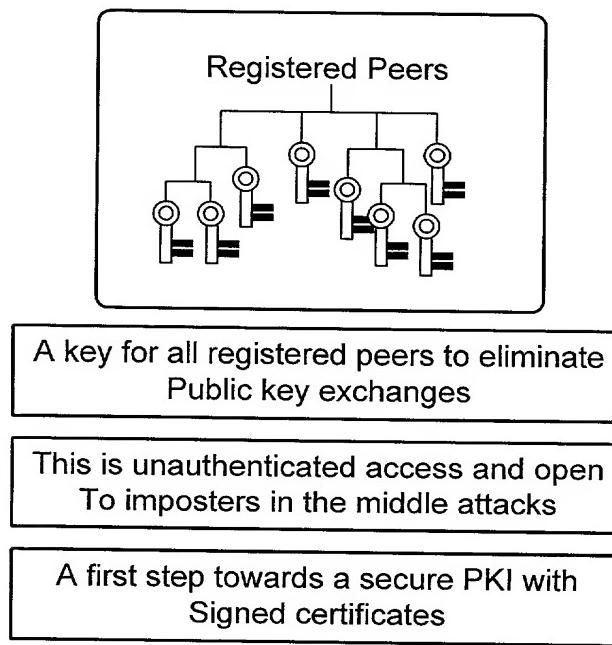


FIG. 22B



P2P platform Proxy Server is a member of all locally registered Peer Groups

FIG. 22C

*FIG. 23***P2P platform proxy service Public Key Chain***FIG. 24*

Privacy

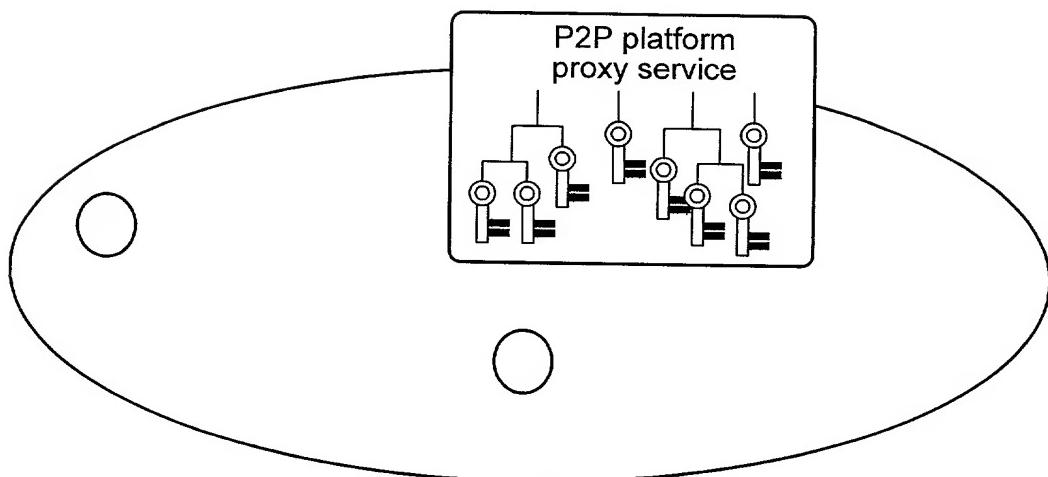
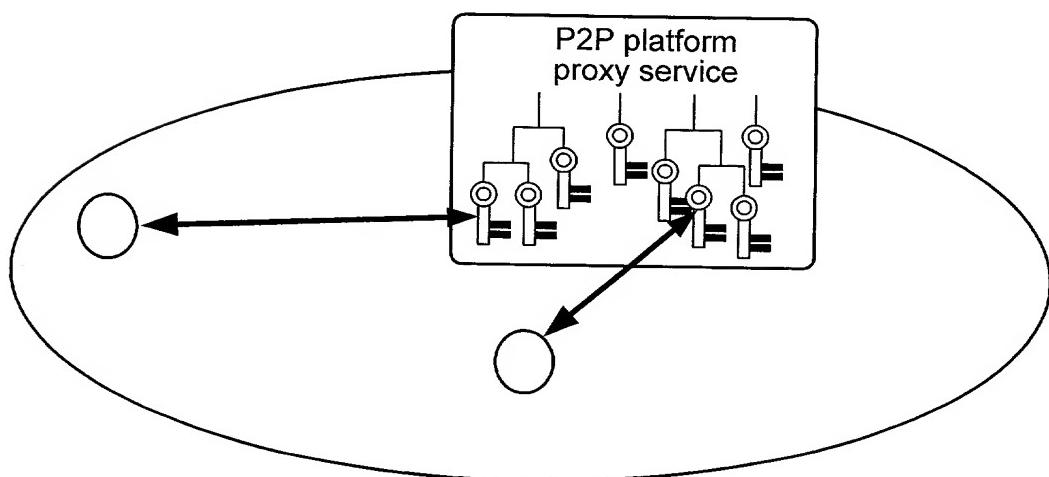


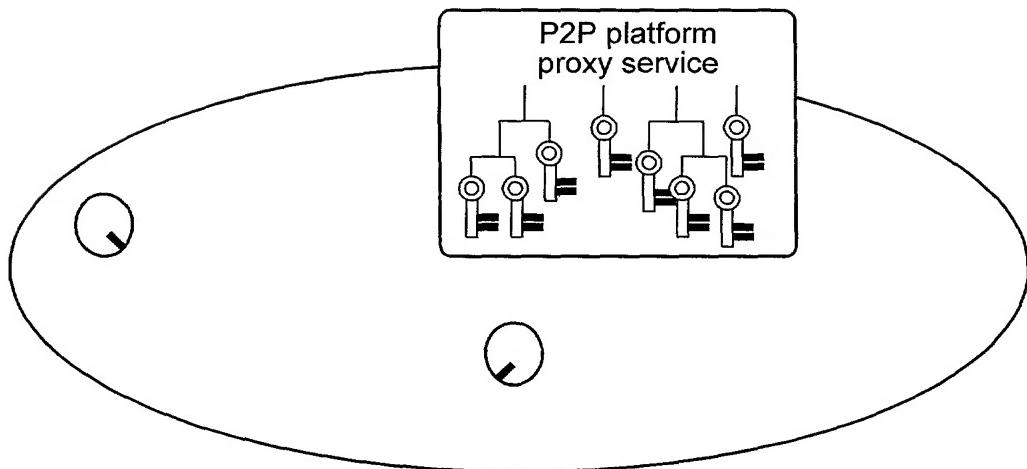
FIG. 25A

Privacy

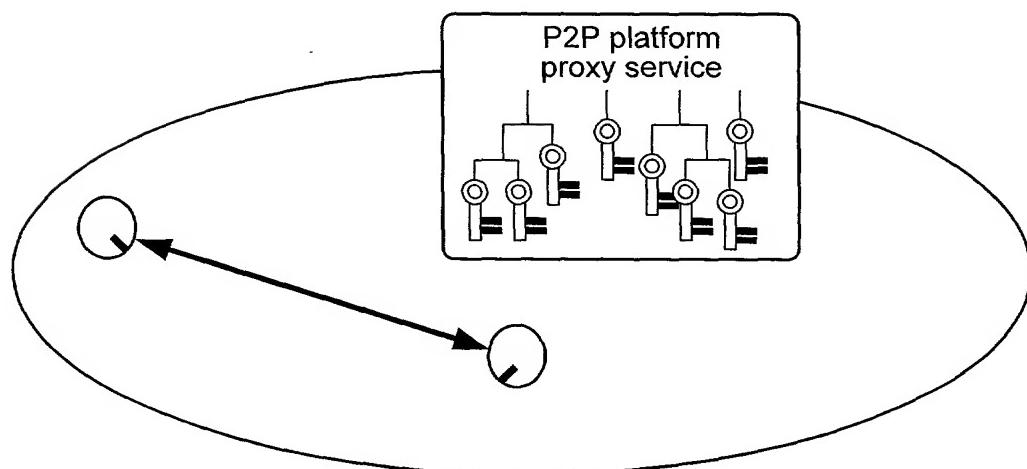


- Fetch and cache public key (Should have expiration date)

FIG. 25B

Privacy

- Fetch and cache public key (Should have expiration date)
- Compute master secret

*FIG. 25C***Privacy**

- Fetch and cache public key (Should have expiration date)
- Compute master secret
- Send cipher text

FIG. 25D

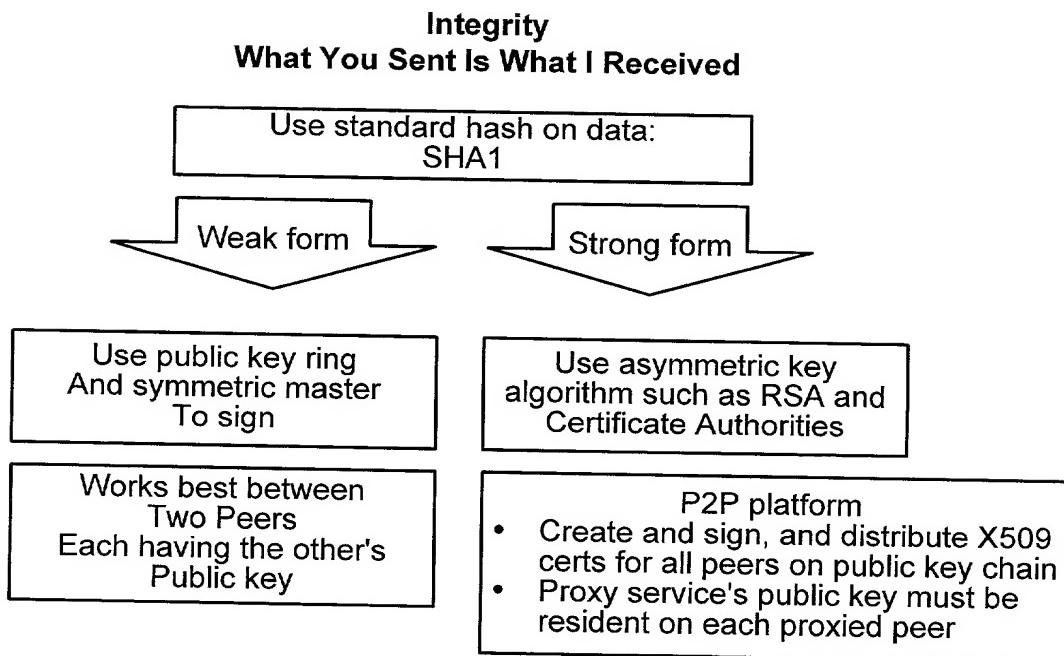


FIG. 26

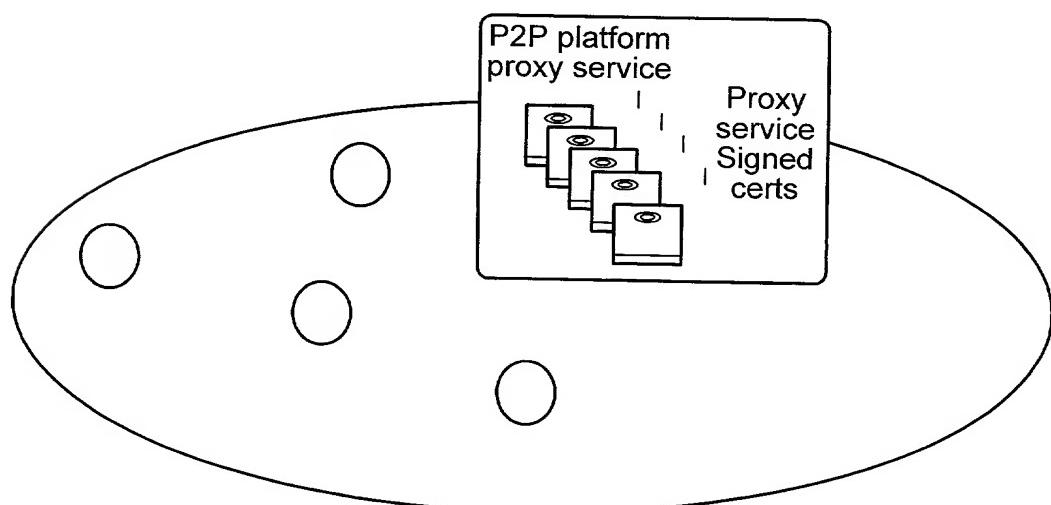
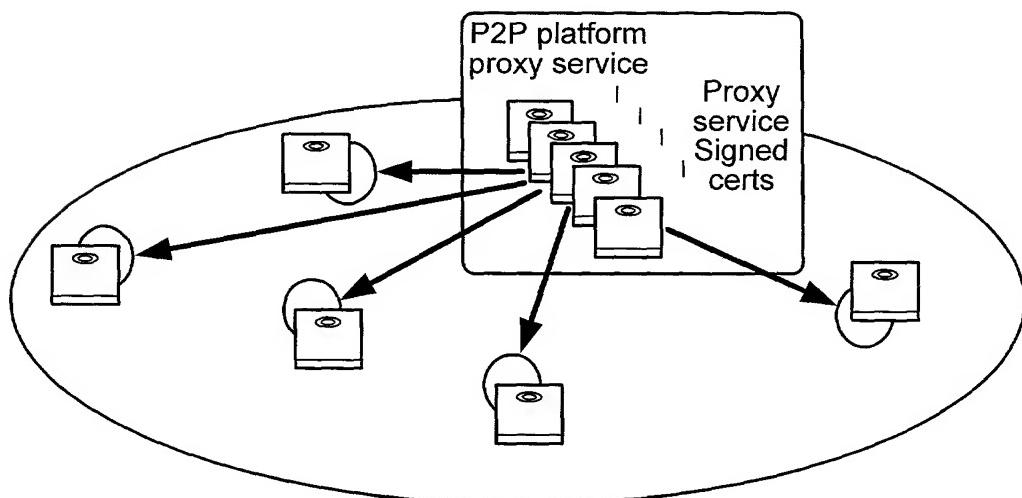
Peer-to-peer platform proxy service as a Certificate Authority

FIG. 27A

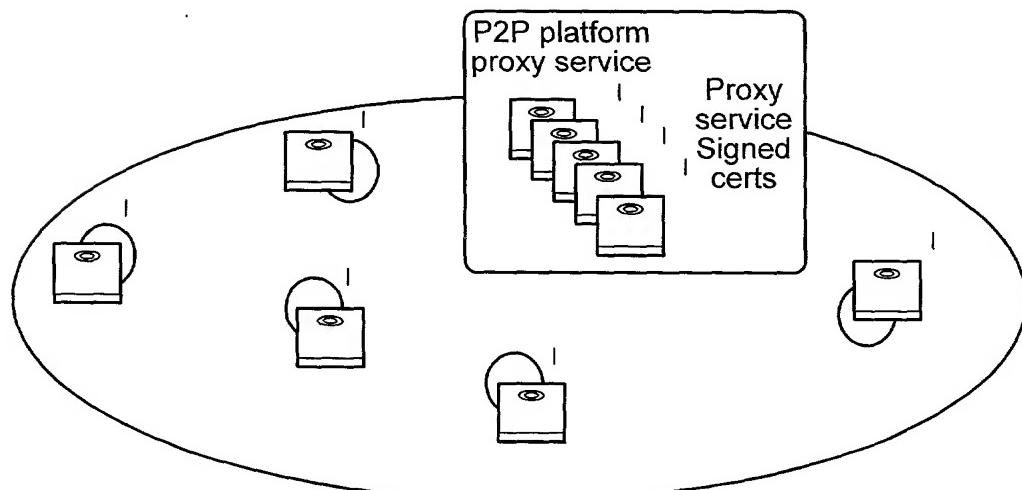
Peer-to-peer platform proxy service as a Certificate Authority



- Distribute signed certs as required on peer requests

FIG. 27B

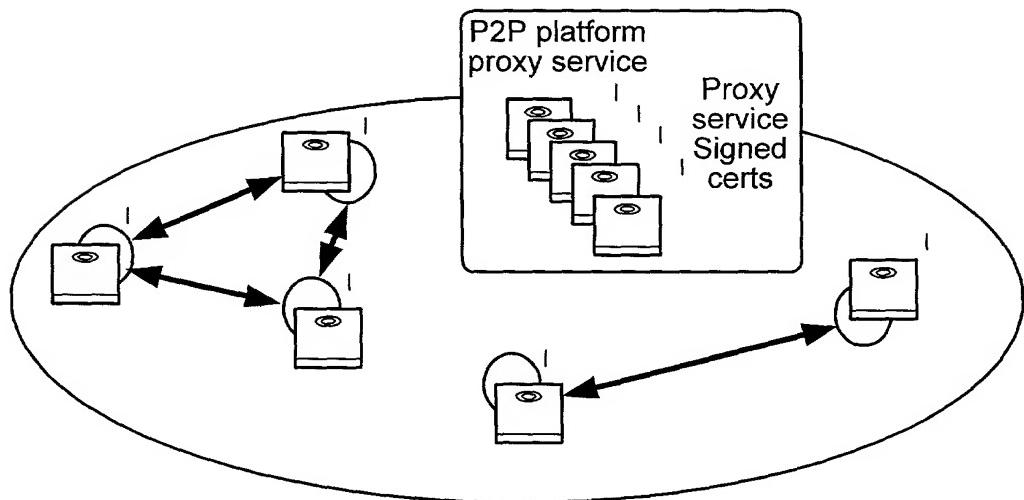
Peer-to-peer platform proxy service as a Certificate Authority



- Distribute signed certs as required on peer requests
- Peers Validate peer-to-peer platform proxy service Signature with resident proxy service public key

FIG. 27C

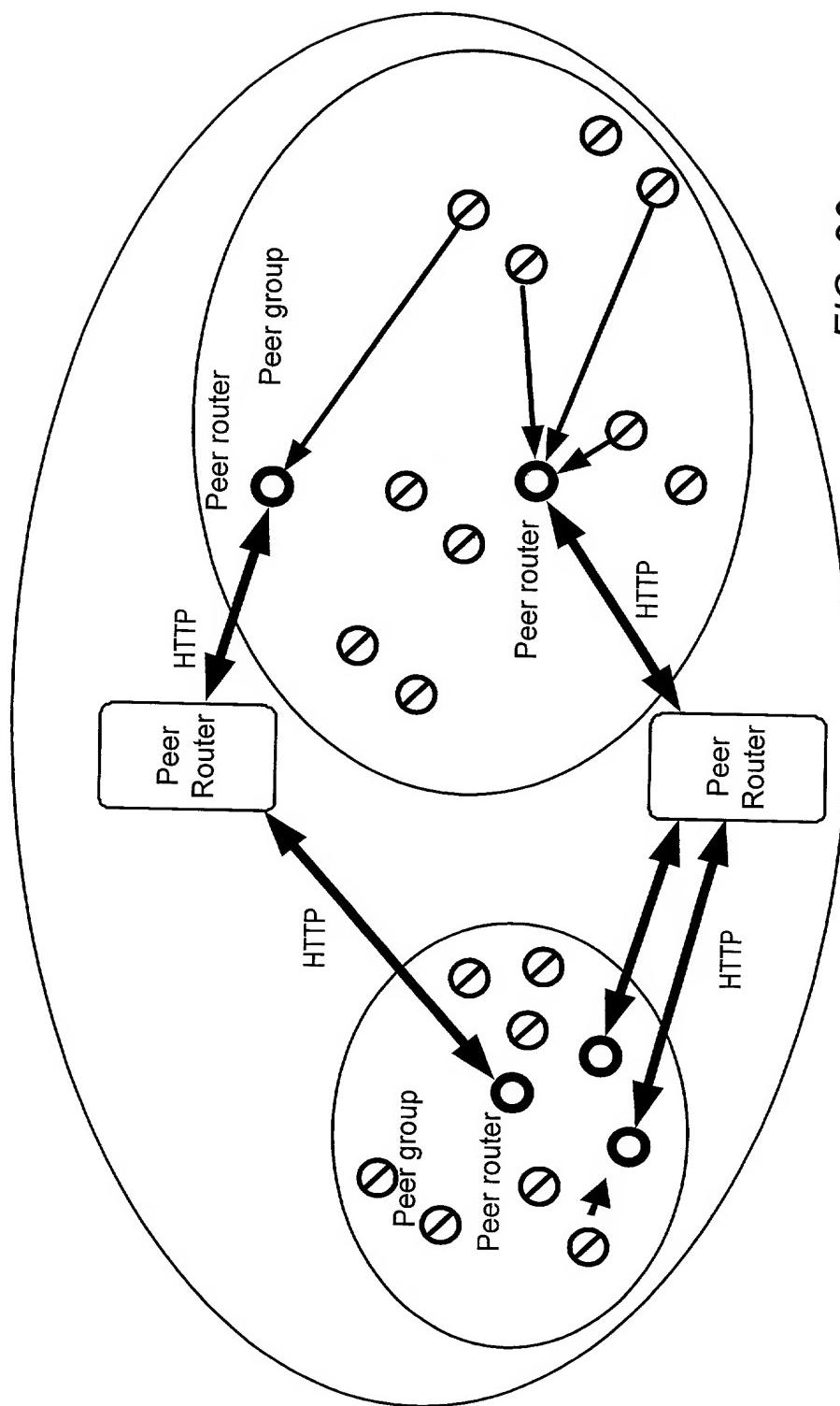
Peer-to-peer platform proxy service as a Certificate Authority



- Distribute signed certs as required on peer requests
 - Peers Validate peer-to-peer platform proxy service Signature with resident proxy service public key
 - Sign content with destination peer's public key and distribute cipher text

FIG. 27D

FIG. 28



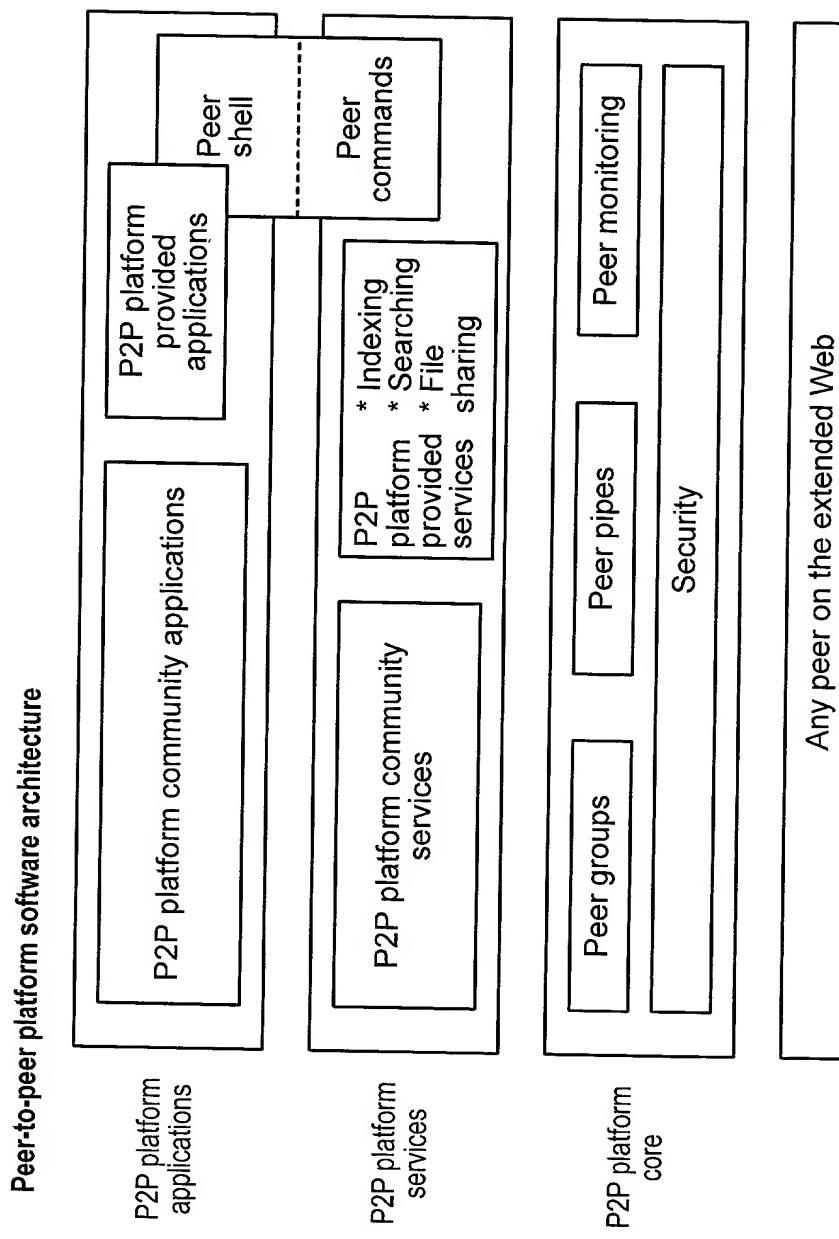


FIG. 29

Discovery Issues

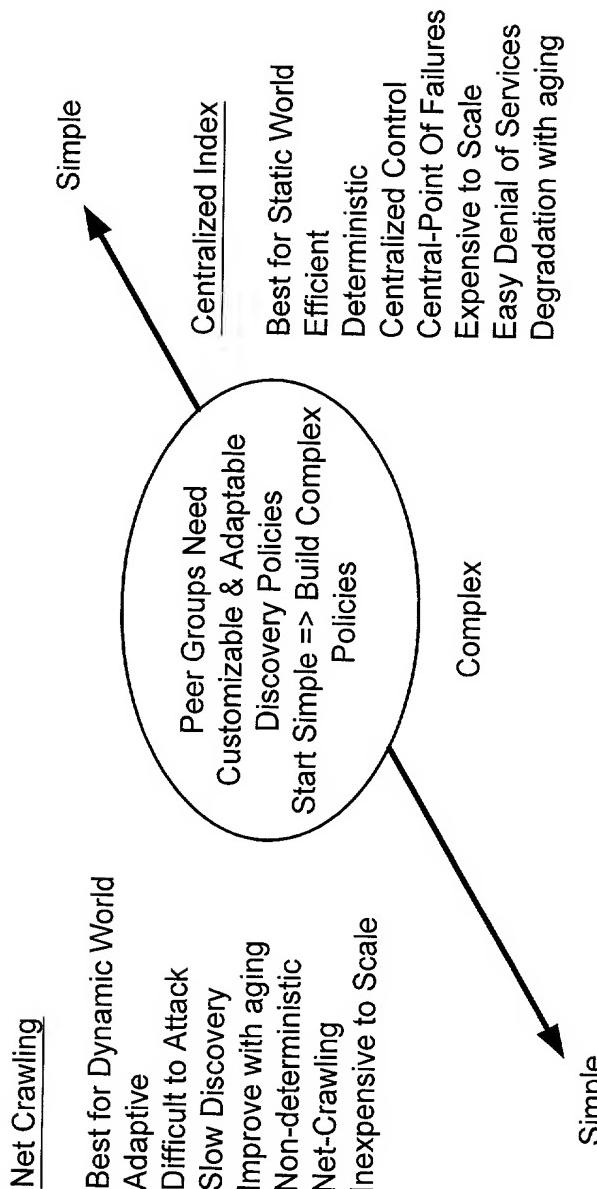
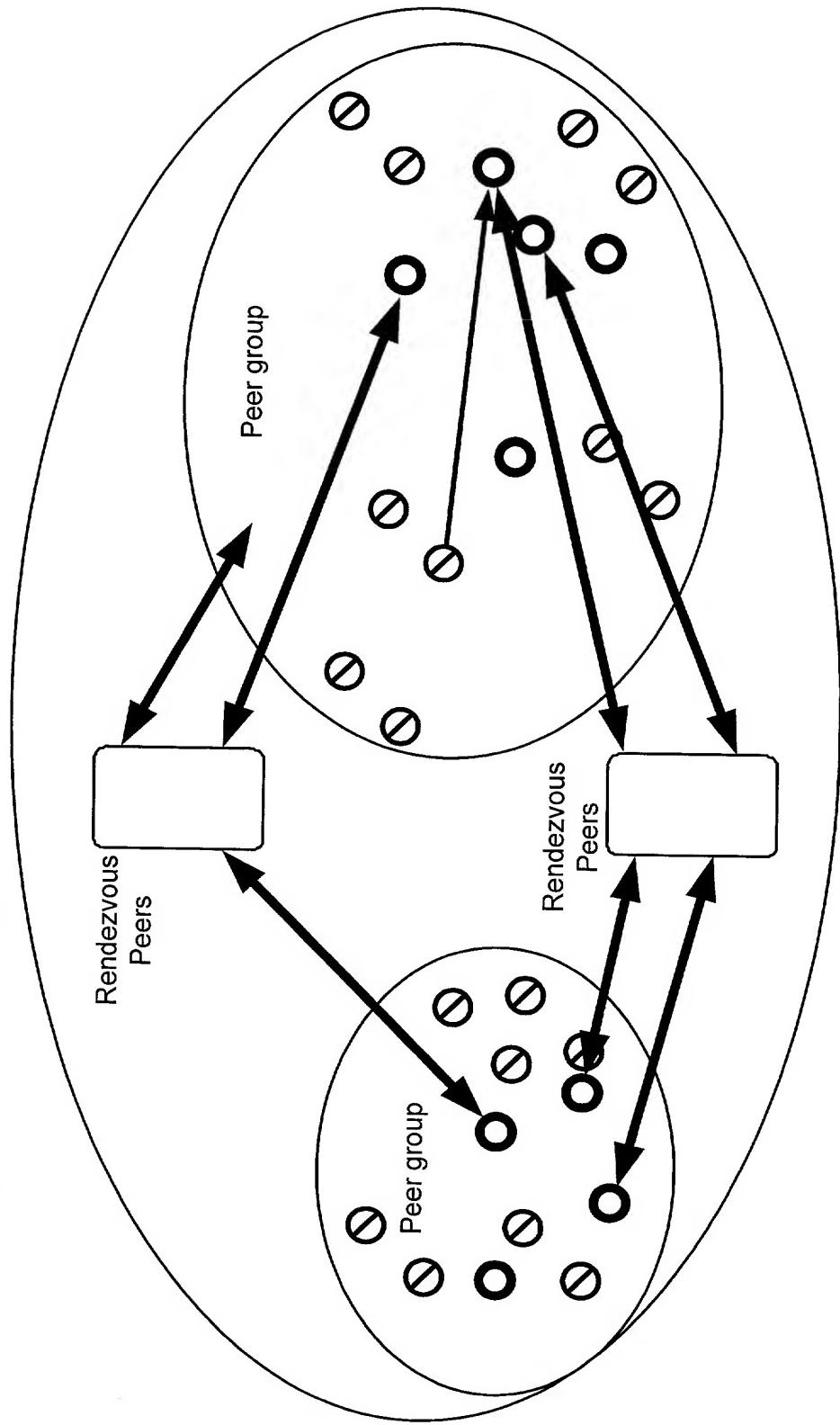


FIG. 30

Discovery Through Rendezvous Proxy



O Rendezvous Access Restricted to Peers with access privileges
Non trusted peers contact local trusted peers

Rendezvous Peers
Cache Peer & Peer Group Info

FIG. 31

